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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/821,175

04/09/2004

Toru Noguchi

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EXAMINER

COLE, ELIZABETH M

ART UNIT

PAPER NUMBER

1771

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

02/09/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/821,175

Applicant(s)

NOGUCHI ET AL.

Examiner

Elizabeth M. Cole

Art Unit

1771

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 and 23-29 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-10, 23-29 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

Art Unit: 1771

1. The finality of the previous action is withdrawn since the limitation that the elastomer can be either crosslinked or uncrosslinked was not properly addressed in the previous action.

2. Claims 1-10, 23-29 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification does not contain support for the limitation that the fibers are "substantially uniformly" dispersed in the elastomer.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-10, 23-29 are rejected under 35 U.S.C. 103(a) as obvious over Fisher et al, U.S. Patent No. 6,203,814 in view of Brennan et al, U.S. Patent NO. 5,844,523. Fisher discloses a composite material comprising carbon nanofibers having a diameter of less than 0.5u, (col. 4, lines 45-46), which can be dispersed in an elastomer such as natural rubber, styrene-butadiene rubber or polybutadiene, (col. 7, lines 1-9). Since the

Art Unit: 1771

elastomers disclosed comprise an unsaturated bond or group, the elastomers would necessarily have the claimed affinity to the carbon nanofibers and the claimed molecular weights. Fisher discloses that there is an affinity between the nanofibers and the elastomers. See abstract. Fisher does not disclose the claimed spin-spin relaxation time of the network components as measured by the Hahn-echo method using pulsed NMR techniques, however, since the same materials are employed and the same results are obtained, it is reasonable to presume that the materials of Fisher would have the claimed spin-spin relaxation time. The elastomer is not disclosed as being crosslinked or uncrosslinked; but instead the reference is silent as to this feature. Brennan et al teaches that elastomers such as rubbers into which filler such as fibers can be dispersed can be either crosslinked or uncrosslinked. See col. 7, line 65 – col. 8, line 10. Therefore, since Fisher et al is silent as to whether crosslinked or uncrosslinked elastomers are employed and Brennan teaches that both crosslinked and uncrosslinked elastomers are suitable for use to form composite materials into which fillers such as fibers are mixed, one of ordinary skill in the art at the time the invention was made would have been motivated to have employed either crosslinked or uncrosslinked elastomers as the elastomer resin component taught by Fisher et al because Brennan et al teaches that both types of elastomers can be used in such composite materials. With regard to the amendment reciting that the fibers are substantially uniformly dispersed, Fisher teaches at col. 7, lines 10-18 that carbon fibers are easily dispersed in the elastomer composition.

Art Unit: 1771

5. Applicant's arguments filed 1/25/07 have been fully considered but they are not persuasive. Applicant's arguments are sufficient to overcome the double patenting rejection. The amendment to the claims that the fibers are "substantially uniformly" dispersed is sufficient to overcome the WO '296 reference since that reference teaches that the fibers are in the form of intertwined aggregates.

6. With regard to the rejection over Fisher, Applicant argues that since Fisher does not disclose conditions of temperature or nips and therefore it is impossible to disperse carbon nanofibers uniformly as presently disclosed. However, Fisher states at col.7, lines 10-18 that the fibers are easily dispersed in the elastomer. Therefore the rejection is maintained. Further, it is noted that the test data referred to in the arguments was not received with the amendment.

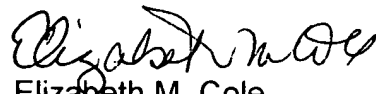
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elizabeth M. Cole whose telephone number is (571) 272-1475. The examiner may be reached between 6:30 AM and 6:00 PM Monday through Wednesday, and 6:30 AM and 2 PM on Thursday.

Mr. Terrel Morris, the examiner's supervisor, may be reached at (571) 272-1478.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

The fax number for all official faxes is (571) 273-8300.

Art Unit: 1771

A handwritten signature in black ink, appearing to read "Elizabeth M. Cole".

Elizabeth M. Cole

Primary Examiner

Art Unit 1771

e.m.c